UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,529	10/08/2003	Robert E. Stewart	NGC-138/000209-199	7493

32205 7590 11/30/2007
PATTI, HEWITT & AREZINA LLC
ONE NORTH LASALLE STREET
44TH FLOOR
CHICAGO, IL 60602

EXAMINER	
HOEKSTRA, JEFFREY GERBEN	

ART UNIT	PAPER NUMBER
3736	

MAIL DATE	DELIVERY MODE
11/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/681,529	**Applicant(s)** STEWART, ROBERT E.	
	Examiner Jeffrey G. Hoekstra	**Art Unit** 3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2007*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.
  4a) Of the above claim(s) *17-22* is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-16,23 and 24* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *16 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Notice of Amendment

1. In response to the amendment filed on 09/28/2007, amended claim(s) 1, 3, 4, 6, 11, and 15 and new claim(s) 23-24 is/are acknowledged. The current rejection of claim(s) 1-16 is/are *withdrawn*. The following new and reiterated grounds of rejection are set forth:

Claim Objections

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-12 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kramer (US 5,592,401).

4. For claims 1 and 2, Kramer discloses an apparatus, comprising: multiple sensors that are adapted to be in contact with multiple joints of an individual and produce multiple signals based on multiple joint motions of an individual, said multiple joints including an ankle, knee, hip, waist, wrist, elbow, and shoulder of the individual (column 6 line 17 – column 7 line 22, column 12 lines 8-17, and column 15 lines 16-19); multiple processing components that employ one or more of the multiple signals to make a determination of a positional change of the individual (column 11 lines 12-25); wherein the multiple sensors produce multiple signals representative of the three dimensional motion of multiple joint motions, said joint motions including the motions of an ankle, knee, hip, waist, wrist, elbow, and shoulder of the individual (column 9 lines 42-64,

column 10 line 56 – column 11 line 5, and column 11 lines 41-51); and wherein the multiple joint motions are measured and reconstructed from a known starting location and the recorded position information to determine a path traversed by the individual (as best seen in Figure 1, column 4 line 26 – column 6 line 6, and column 17 lines 6-11).

5. For claims 3-6, Kramer discloses an apparatus, wherein a first strain sensor of the multiple strain sensors detects a bending of a first joint of the individual, wherein the first strain sensor represents the bending as first strain information in a first signal of the multiple signals (column 6 line 17 – column 7 line 22, column 12 lines 8-17, and column 12 lines 16-19); wherein one or more of the multiple processing components employ the first strain information to make a determination of a displacement of the positional change of the individual (column 11 lines 12-25 and column 17 lines 6-11); wherein a second strain sensor of the multiple strain sensors detects a twisting of a second joint of the individual, wherein the second strain sensor represents the twisting as second strain information in a second signal of the multiple signals (column 6 line 17 – column 7 line 22, column 12 lines 8-17, and column 12 lines 16-19); wherein one or more of the multiple processing components employ the second strain information to make a determination of a direction of the positional change of the individual (column 11 lines 12-25 and column 17 lines 6-11); wherein one or more of the multiple processing components employ the displacement of the positional change, the direction of the positional change, and a known starting location of the individual to make a determination of an updated position of the individual (column 11 lines 12-25 and column 17 lines 6-11).

6. For claims 7 and 8, Kramer discloses an apparatus, further comprising: a filter (said program positively recited in column 10 lines 29-46) said component that weighs and combines: the positional change determined by the one or more processing components based on the multiple joint motions of the individual; and position information from multiple supplementary navigation components, wherein the supplementary navigation components comprise multiple of a global positioning system, GPS, and an inertial navigation system, INS (column 7 lines 36-46); wherein the filter component weighs and combines position information from the one or more processing components and the supplementary navigation components based on a relative reliability of the one or more processing components and the supplementary navigation components (column 9 lines 22-41).

7. For claims 9 and 10, Kramer discloses an apparatus, wherein one or more of the multiple processing components receive position correction information of the individual from multiple supplementary navigation components (column 10 lines 29-46 and column 17 lines 6-11) and wherein one or more of the multiple processing components provide initial position information of the individual to multiple supplementary navigation components upon initialization of the multiple supplementary navigation components (column 7 lines 36-46, column 10 lines 29-46, and column 17 lines 6-11).

8. For claim 11, Kramer discloses an apparatus, wherein the multiple sensors are integrated into a suit wearable by the individual, wherein the multiple sensors are located in the suit at positions that are adjacent to multiple joints of the individual (as best seen in Figure 2).

9. For claim 12, Kramer discloses an apparatus, further comprising: a magnetic heading sensor (said electromagnetic sensor positively recited in column 7 lines 36-46) that provides direction information to one or more of the multiple processing components (column 10 lines 29-46), wherein the direction information of the magnetic heading sensor supplements the positional change determined by the one or more processing components; wherein the magnetic heading sensor is capable of employing the Earth's magnetic field to make a determination of a direction of the positional change of the individual.

10. For claim 14, Kramer discloses an apparatus, wherein the multiple sensors and the one or more processing components are calibrated (column 6 lines 40-65) to the individual by having the individual traverse a known path to monitor how the multiple joint motions of the individual respond to the known path.

11. For claim 15, Kramer discloses an apparatus, wherein the one or more processing components calculate an updated position of the individual based on a known starting position and the positional change of the individual (column 10 lines 29-46); wherein the one or more processing components send the updated position of the individual to one or more of a display component and a recording component (column 10 lines 29-46).

12. For claim 16, Kramer discloses an apparatus, wherein the multiple sensors comprise multiple rate sensors (column 6 lines 18-39).

13. For claims 23 and 24, discloses an apparatus, wherein the multiple sensors are arranged bi-laterally and symmetrically on the individual (as best seen in Figure 2) (column 20 lines 43-56).

Claim Rejections - 35 USC § 103

14. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer in view of Root et al (US 6,013,007). Kramer discloses the claimed invention except for the barometric altitude sensor providing information to the one or more processing components via measuring atmospheric pressure. Root et al teaches position-sensing device, comprising: a barometric altitude sensor (610) providing information to the one or more processing components (602) via measuring atmospheric pressure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the position-sensing apparatus as taught by Kramer, with the pressure sensor of Root et al for the purpose of increasing the efficacy of a position sensing apparatus for improvements in patient tracking.

Response to Arguments

16. Applicant's arguments filed 09/28/2007 have been fully considered but they are not persuasive. Applicant argues Kramer does not anticipate claims 1-12, 14-16, and 23-24 nor render obvious claim 13, because Kramer does not any type of sensor measurements of the hip and the waist of an individual. The Examiner disagrees, cites the rejection as set forth above, and notes the following:

17. Kramer discloses sensor measurements of the hip and the waist of an individual (as best seen in Figure 2) via disposing multiple sensors (242 and 244) between the shoulder blades and on the pelvis in the lumbar region. Kramer discloses multiple sensors that are adapted to be in contact with multiple joints of an individual and produce multiple signals based on multiple joint motions of an individual, said multiple joints including an ankle, knee, hip, waist, wrist, elbow, and shoulder of the individual (column 6 line 17 – column 7 line 22, column 12 lines 8-17, and column 15 lines 16-19). In addition, the multiple sensors associated with multiple motion signals as disclosed by Kramer are capable of being disposed on a variety of joints or locations on an individual (column 20 lines 43-56).

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey G. Hoekstra whose telephone number is (571) 272-7232. The examiner can normally be reached on Monday through Friday 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.H./
Jeff Hoekstra
Examiner, Art Unit 3736